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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,067	09/12/2005	Lydie Desperben	SC0909ET	5131

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EXAMINER	
JOSEPH, JAISON	
ART UNIT	PAPER NUMBER
2611	

NOTIFICATION DATE	DELIVERY MODE
10/02/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USADOCKETING@FREESCALE.COM

Office Action Summary	Application No.	Applicant(s)	
	10/520,067	DESPERBEN ET AL.	
	Examiner	Art Unit	
	JAISON JOSEPH	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 20 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

> Nonfunctional descriptive material that does not constitute a statutory process, machine, manufacture or composition of matter and should be rejected under 35 U.S.C. Sec. 101. Certain types of descriptive material, such as music, literature, art, photographs and mere arrangements or compilations of facts or data, without any functional interrelationship is not a process, machine, manufacture or composition of matter. USPTO personnel should be prudent in applying the foregoing guidance. Nonfunctional descriptive material may be claimed in combination with other functional descriptive multi-media material on a computer-readable medium to provide the necessary functional and structural interrelationship to satisfy the requirements of 35 U.S.C. Sec. 101. The presence of the claimed nonfunctional descriptive material is not necessarily

> determinative of nonstatutory subject matter. For example, a computer that recognizes a particular grouping of musical notes read from memory and upon recognizing that particular sequence, causes another defined series of notes to be played, defines a functional interrelationship among that data and the computing processes performed when utilizing that data, and as such is statutory because it implements a statutory process.

Claims 20 lacks the proper form for a claim that is directed to computer/machine readable instructions.

To be statutory, claims directed to computer/machine readable instructions must be embodied on a computer readable medium encoded with a process or data structure usable by a computer. For the claims to be statutory the preamble of the claims must define a structural and functional interrelationship between the process or data structure and computer software and hardware components. As a result, the preamble of the claims must define a process or data structure as a computer readable medium embodying the process or data structure. An example preamble would be "A computer readable medium embodying a computer program, the program comprising instructions:"

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 – 20 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Hui et al (US Patent 6,674,820) in views of Gerstacker et al (EP 1128617 A1).

Regarding claim 1, Hui et al teach an arrangement for iterative channel impulse response estimation in a system employing a transmission channel, comprising channel impulse response estimation means for producing from a received signal a channel impulse response estimate signal and a noise estimate signal for producing from the received signal a noise signal, said channel impulse response estimation means is arranges to iteratively respond to noise signal to iteratively produce an improves channel impulse response estimate signal (see abstract). Hui et al does not expressly teach the noise estimate comprises a matrix representing the inverse of noise covariance. However in analogous art, Gerstacker et al teach estimating the impulse response using the inverse of noise covariance (see page 3, lines 28 – 55 . Therefore it would have been obvious to an ordinary skilled in the art at the time the invention was made to incorporate the teaching of Gerstacker in Hui et al. the motivation or suggestion to do so is to determine the impulse response accurately.

Regarding claim 2, which inherits the limitations of claim 1, Gerstacker et al further teach wherein said matrix (W) representing the inverse of noise covariance is calculated at each iteration (see equation 8).

Regarding claim 3, which inherits the limitations of claim 1, Gerstacker et al further teach wherein said matrix (W) representing the inverse of noise covariance is selected from predetermined values corresponding to statistics of expected noise.(see page 3, lines 28 -55) .

Regarding claim 4, which inherits the limitations of claim 2, Gerstacker et al further teach wherein the channel impulse response estimate signal is represented by: (HH .W.H)-I .HH .W.y, where H represents a matrix depending on known symbols, y represents a vector of received channel samples, and W represents the inverse noise covariance matrix (see page 3, lines 28 – 55).

Regarding claim 5, which inherits the limitations of claim 4, Hui et al further teach wherein said matrix (W) representing the inverse of noise covariance is selected from predetermined values corresponding to statistics of expected noise; and wherein the predetermined values corresponding to statistics of expected noise are selected according to the noise types: Gaussian, upper adjacent interferer, lower adjacent interferer, or co-channel interferer (see abstract).

Regarding claim 6, which inherits the limitations of claim 1, Hui et al further teach wherein the channel impulse response estimation means is arranged to produce the channel impulse response estimate signal (/3) as a weighted least square function (see column 3, lines 51 – 53).

Regarding claim 7, which inherits the limitations of claim 1, Hui et al further teach wherein the system is a wireless communication system (see column 1, lines 19 – 20).

Regarding claim 8, which inherits the limitations of claim 7, Hui et al further teach wherein the system is a GSM system (see column 1, lines 19—20).

Regarding claim 9, which inherits the limitations of claim 7, wherein the system is an EDGE system (official notice is taken).

Regarding claim 10, Hui in view of Gerstacker et al teach A receiver for use in a system employing a transmission channel, the receiver comprising the arrangement of any preceding claim 1 (see abstract)..

Regarding claim 11, the claimed method including the features corresponds to subject matter mentioned above in the rejection of claim 1 is applicable hereto.

Regarding claim 12, which inherits the limitations of claim 11, the claimed method including the features corresponds to subject matter mentioned above in the rejection of claim 2 is applicable hereto.

Regarding claim 13, which inherits the limitations of claim 11, the claimed method including the features corresponds to subject matter mentioned above in the rejection of claim 3 is applicable hereto.

Regarding claim 14, which inherits the limitations of claim 12, the claimed method including the features corresponds to subject matter mentioned above in the rejection of claim 4 is applicable hereto.

Regarding claim 15, which inherits the limitations of claim 14, the claimed method including the features corresponds to subject matter mentioned above in the rejection of claim 5 is applicable hereto.

Regarding claim 16, which inherits the limitations of claim 11, the claimed method including the features corresponds to subject matter mentioned above in the rejection of claim 6 is applicable hereto.

Regarding claim 17, which inherits the limitations of claim 11, the claimed method including the features corresponds to subject matter mentioned above in the rejection of claim 7 is applicable hereto.

Regarding claim 18, which inherits the limitations of claim 17, the claimed method including the features corresponds to subject matter mentioned above in the rejection of claim 8 is applicable hereto.

Regarding claim 19 which inherits the limitations of claim 17, the claimed method including the features corresponds to subject matter mentioned above in the rejection of claim 29 is applicable hereto.

Regarding claim 20, Hui et al further teach the method of claim 11 can be executed via software (see column 11, lines 21 - 40).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAISON JOSEPH whose telephone number is (571)272-6041. The examiner can normally be reached on M-F 9:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. J./
Examiner, Art Unit 2611

/Chieh M Fan/
Supervisory Patent Examiner, Art Unit 2611